

CLAIMS

We claim:

- 5 1. A monofilament suture prepared by co-extruding a first absorbable polymer and a second absorbable polymer having a Young's modulus lower than the Young's modulus of the first polymer, wherein the first polymer surrounds the second polymer such that said suture has improved knot security and flexibility.
- 10 2. The monofilament suture of Claim 1, wherein the amount of the first polymer is 10 to 90% by volume and the amount of the second polymer is 10 to 90% by volume.
3. The monofilament suture of Claim 2, wherein the amount of the first polymer is 50 to 90% by volume and the amount of the second polymer is 10 to 50% by volume.
- 15 4. The monofilament suture of Claim 1, wherein the first polymer and the second polymer are homopolymers or are copolymers synthesized from monomers selected from the group consisting of glycolide, glycolic acid, lactide, lactic acid, caprolactone, dioxanone, trimethylene carbonate and ethyleneglycol.
- 20 5. The monofilament suture of Claim 4, wherein the first polymer is a homopolymer or is a copolymer synthesized from monomers selected from the group consisting of glycolide, glycolic acid, dioxanone and lactide.
- 25 6. The monofilament suture of Claim 4, wherein the second polymer is a homopolymer or is a copolymer synthesized from monomers selected from the group consisting of caprolactone, trimethylene carbonate, DL-lactide and ethylene glycol.
- 30 7. The monofilament suture of Claim 4, wherein the second polymer is a copolymer comprising dioxanone, trimethylene carbonate and caprolactone.
8. The monofilament suture of Claim 1, wherein the melting point of the first polymer is higher than the melting point of the second polymer.

9. The monofilament suture of Claim 1, wherein the Young's modulus of the first polymer and the second polymer is 3.0GPa or less, and wherein the difference of the Young's modulus between the first polymer and the second polymer is 0.3GPa or more.
- 5 10. The monofilament suture of Claim 9, wherein the Young's modulus of the first polymer is 2.0GPa or less and the Young's modulus of the second polymer is 1.5GPa or less.
- 10 11. The monofilament suture of Claim 10, wherein the Young's modulus of the first polymer is 1.0~1.5Gpa and the Young's modulus of the second polymer is 1.2GPa or less.
12. The monofilament suture of Claim 11, wherein the Young's modulus of the second polymer is 0.4~1.2GPa.
- 15 13. A monofilament suture, having improved knot security and flexibility, prepared by co-extruding a first absorbable polymer and a second absorbable polymer having a Young's modulus lower than the Young's modulus of the first polymer which forms a sea/island type suture wherein the first polymer is the sea component and the second polymer is the island component.
- 20 14. The monofilament suture of Claim 13, wherein the amount of the first polymer is 10 to 90% by volume and the amount of the second polymer is 10 to 90% by volume.
- 25 15. The monofilament suture of Claim 14, wherein the amount of the first polymer is 50 to 90% by volume and the amount of the second polymer is 10 to 50% by volume.
- 30 16. The monofilament suture of Claim 13, wherein the first polymer and the second polymer are homopolymers or are copolymers synthesized from monomers selected from the group consisting of glycolide, glycolic acid, lactide, lactic acid, caprolactone, dioxanone, trimethylene carbonate and ethyleneglycol.

17. The monofilament suture of Claim 16, wherein the first polymer is a homopolymer or is a copolymer synthesized from monomers selected from the group consisting of glycolide, glycolic acid, dioxanone and lactide.
- 5 18. The monofilament suture of Claim 16, wherein the second polymer is a homopolymer or is a copolymer synthesized from monomers selected from the group consisting of caprolactone, trimethylene carbonate, DL-lactide and ethylene glycol.
- 10 19. The monofilament suture of Claim 16, wherein the second polymer is a copolymer comprising dioxanone, trimethylene carbonate and caprolactone.
20. The monofilament suture of Claim 13, wherein the melting point of the first polymer is higher than the melting point of the second polymer.
- 15 21. The monofilament suture of Claim 13, wherein the Young's modulus of the first polymer and the second polymer is 3.0GPa or less, and wherein the difference of the Young's modulus between the first polymer and the second polymer is 0.3GPa or more.
- 20 22. The monofilament suture of Claim 21, wherein the Young's modulus of the first polymer is 2.0GPa or less and the Young's modulus of the second polymer is 1.5GPa or less.
- 25 23. The monofilament suture of Claim 22, wherein the Young's modulus of the first polymer is 1.0~1.5Gpa and the Young's modulus of the second polymer is 1.2GPa or less.
24. The monofilament suture of Claim 23, wherein the Young's modulus of the second polymer is 0.4~1.2GPa.
- 30 25. A monofilament suture, having improved knot security and flexibility, prepared by co-extruding a first absorbable polymer and a second absorbable polymer having a Young's modulus lower than the Young's modulus of the first polymer which forms a sheath/core type suture wherein the first polymer is the sheath component and the second polymer is the core component.

26. The monofilament suture of Claim 25, wherein the amount of the first polymer is 10 to 90 % by volume and the amount of the second polymer is 10 to 90 % by volume.
27. The monofilament suture of Claim 26, wherein the amount of the first polymer is 50 to 90 % by volume and the amount of the second polymer is 10 to 50 % by volume.
28. The monofilament suture of Claim 25, wherein the first polymer and the second polymer are homopolymers or are copolymers synthesized from monomers selected from the group consisting of glycolide, glycolic acid, lactide, lactic acid, caprolactone, dioxanone, trimethylene carbonate and ethyleneglycol.
29. The monofilament suture of Claim 28, wherein the first polymer is a homopolymer or is a copolymer synthesized from monomers selected from the group consisting of glycolide, glycolic acid, dioxanone and lactide.
30. The monofilament suture of Claim 28, wherein the second polymer is a homopolymer or is a copolymer synthesized from monomers selected from the group consisting of caprolactone, trimethylene carbonate, DL-lactide and ethylene glycol.
31. The monofilament suture of Claim 28, wherein the second polymer is a copolymer comprising dioxanone, trimethylene carbonate and carbprolactone.
32. The monofilament suture of Claim 25, wherein the melting point of the first polymer is higher than the melting point of the second polymer.
33. The monofilament suture of Claim 25, wherein the Young's modulus of the first polymer and the second polymer is 3.0GPa or less, and wherein the difference of the Young's modulus between the first polymer and the second polymer is 0.3GPa or more.
34. The monofilament suture of Claim 33, wherein the Young's modulus of the first polymer is 2.0GPa or less and the Young's modulus of the second polymer is 1.5GPa or less.

35. The monofilament suture of Claim 34, wherein the Young's modulus of the first polymer is 1.0~1.5Gpa and the Young's modulus of the second polymer is 1.2GPa or less.

5 36. The monofilament suture of Claim 35, wherein the Young's modulus of the second polymer is 0.4~1.2GPa.

37. A process for preparing a monofilament suture, comprising the steps of:

- 10 1) melting a first absorbable polymer and a second absorbable polymer having a Young's modulus lower than the Young's modulus of the first polymer,
- 2) co-extruding the first polymer as a sea or sheath component and the second polymer as an island or core component, and
- 3) solidifying, crystallizing and drawing the yarn resulting from step 2).

15 38. The process for preparing the monofilament suture of Claim 37, wherein the melting point of the first polymer is higher than the melting point of the second polymer.